Local Dynamics and Small Group Language Activities

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1 Introduction

Language teaching has often been divided up into discrete domains: speaking, listening, reading, writing, and grammar. Further, many models of language teaching assume generic students, teachers, classrooms, and so on, as opposed to specific personalities, styles, and environments. The interaction among all these elements have attracted little attention. Yet complexity theory points out that important patterns emerge out of these interactions, patterns which cannot be predicted from the analysis of individual elements or characteristics; furthermore, these patterns are sensitive to initial conditions (Casti, 1994, p. 35), so a generalized model may not reflect reality.

Arrow, McGrath, and Berdahl (2000) have developed a theory of small group dynamics using complexity theory. This paper will attempt to connect their ideas to small group language learning activities, specifically looking at the aspect of local dynamics.

2 Theory of Small Groups as Complex Systems

Arrow, McGrath, and Berdahl (2000, p. 33) developed five propositions for their theory of small groups as complex, adaptive, and dynamic systems which "address (a) the nature of groups, (b) causal dynamics in groups, (c) group purposes or functions, (d) the elements and the network of relations

among them that constitute group composition and structure, and (e) modes of group life over time."

The first proposition (p. 34) states groups may contain subgroups and be contained within supergroups; these groups interact through open boundaries that may not be well-defined. Groups are complex systems.

The second proposition (p. 40) defines three levels of dynamics, local, global, and contextual, which correspond to activity among group members, evolution of group characteristics, and interaction with the embedding context.

The third proposition (p. 47) states groups function to "complete group projects," "fulfill member needs," and maintain the group itself.

The fourth proposition (pp. 50–51) links group members, purposes, and resources in a coordination network, which has six sets of relations: member-member (member network), task-task (task network), tool-tool (tool network), member-task (labor network), member-tool (role network), and task-tool (job network).

The fifth proposition (p. 54) describes three modes that groups experience during their existence: formation, operation, and metamorphosis.

3 Classification of Groups in Language Classrooms

The theory of Arrow, McGrath, and Berdahl refers often to the type of group being analyzed; the classification of groups depends on their formation as well as their function. Arrow, et al., describe four ways groups are formed (2000, p. 65): concocted (by external agents), founded (by charter members), self-organized (arising from interactions among members), and circumstantial (groups formed by "unexpected environmental circumstances" (p. 66)). Let us see how these group types manifest themselves in the language classroom. Founded groups correspond to cliques (1), teams when participating in a competition, and extracurricular

study groups. In order to accomplish some language activity, teachers often assign students to groups (by proximity, or by lot, or by previously determined lists). This corresponds to the concocted type. An example of a self-organized group are one of a smaller subset of groups carrying out subtasks for a group project. Circumstantial groups rarely occur because the classroom usually is under at least some measure of control to avoid "unexpected environmental circumstances," such as accidents and disasters.

In terms of function, there are three prototypical groups associated with the project completion aspect of Proposition 3, and three associated with needs fulfillment. The latter three types, collected under the rubric of "clubs," are economic clubs, social clubs, and activity clubs (Arrow, et al., 2000, p. 85). This paper is focusing on language activity groups in classrooms; hence clubs will not be examined here. The first three types, collected under the rubric of "work groups," are task forces, crews, and teams (p. 82). Task forces (p. 82) are groups formed for the duration of a project or task; these are the typical activity groups formed in language classrooms. Crews (p. 83) are groups that have predetermined roles for each member. A typical flight crew, with a captain, first officer, and flight engineer, is given as an example: each member of a flight crew knows his or her duties, and most flight crews will act the same way regardless of member changes. In the classroom, there are activities that assign roles to group members, such as leader, time keeper, and recording secretary. Teams (p. 84) are similar to task forces except they are expected to last over several projects. Often concocted groups in the classroom are determined by proximity, as mentioned above; since students rarely change seats over the duration of a course, task forces become de facto teams due to having the same members repeatedly.

4 Borrowing Game and Advice Panel

In this section, two language activities are described; they will be used to exemplify the various aspects of local dynamics described in the rest of this paper.

The borrowing game (BG) (adapted from Helgesen, et al., 2010, pp. 47–48) has one person as "judge" and the rest as "contestants." The groups prepare small pieces of paper on which are written objects from everyday life (sometimes fanciful or imaginary objects might be used). These are mixed and placed in a pile. The judge chooses a piece of paper and announces the object to the others. The others take turns giving reasons why the object should be lent to her. The judge awards the object, i.e., the piece of paper, to the contestant with the most interesting answer. Then another group member takes on the role of judge, and so on. At game end, the person with the most pieces of paper wins.

The advice panel game (AP) (adapted from Helgesen, et al., 2010, pp. 83–84, 86) has each group divide into two subgroups. One group is the panel of judges, and the other is the panel of advice-givers. One judge states a problem similar to ones found in newspaper advice columns. The advice-givers take turns in giving advice about the problem. Then each judge gives a token, such as a piece of paper or even candy, to the person who gave the best advice. Then another judge will announce a problem to begin the process again. When all judges have had a turn to state a problem, the roles of judges and advice-givers are reversed, and the process is repeated. Finally, as time permits, the subgroups trade places with other subgroups and the game begins again. At game end, the person with the most tokens wins.

5 Local Dynamics: Coordination Network

The fourth proposition describes the elements of a group, members, tasks, and tools (Arrow, et al., 2000, pp. 50–51), which are linked together in a coordination network. The coordination network is the key idea in analyzing the local dynamics of a group, of which there are three aspects: the elaboration of the network; the enacting and maintaining of the network; and modifying the network via feedback and learning (pp. 90–91).

As time progresses, the ties among the elements of a coordination network, i.e., members, tasks, and tools, increase; the network becomes more elaborate (Arrow, et al., 2000, p. 93). In BG and AP, students get used to their roles and begin to understand what type of response is likely from the various members. For example, one student may tend to give the most creative answers whereas another would be more realistic. Groups begin to establish a rhythm for the activity: some going fast with lightning-fast responses, some going slow with measured answers. Inasmuch that language is a tool, the tool repertoire will increase as students discover new expressions from others.

Arrow, et al. (2000, pp. 93–94) describe two major ways a coordination network is maintained, depending on whether the group activity is planned or unplanned. In planned activities, group members try to follow the specified tasks; in unplanned activities, group members must decide for themselves how the group goal is to be achieved.

Both the BG and AP activities include planned and unplanned elements. Both activities use a planned, specific interaction pattern; the immediate goal for each turn is to pose a problem and receive answers. The order in which individuals give answers is not specified. Groups develop their own rules, such as spatial order or first hand raised. Usually those answering early have the advantage of not having their answer taken by someone else; those answering later can build upon what others have said.

At the "micro-level" (Arrow, et al., 2000, p. 95) of group dynamics, that is, at the group member level, changes occur through feedback mechanisms as group members gain more experience and information. Feedback is categorized as follows (p. 95):

> (a) how obvious and objective the criteria for evaluation are, (b) how quickly the effects of an action can be assessed, and (c) the degree to which outcomes depend on multiple intertwined actions or a single action.

The BG and AP activities feature subjective and immediate feedback; in BG, one person returns overt feedback, whereas in AP one team does this. Those who are not judges or evaluators often chime in, commenting on the answers, although mostly given in L1. The outcome of each round in BG and AP is the accumulation of points. Those with lesser points may lose motivation or, conversely, try to catch up. Nevertheless, each round is essentially independent; outcomes are only loosely coupled to previous ones.

6 Local Dynamics: Member Needs

Arrow, et al., (2000, p. 98) use the group socialization model of Moreland and Levine (1982) to analyze the driving forces behind local dynamics. The commitment of an individual member to a group and vice versa depends on perceived contributions. Group members have the need for affiliation (interpersonal ties and social interchange), achievement (recognition for accomplishments), power (status), and resources.

One of the goals of BG, and usually for AP, is to give an interesting answer. Those who tend to give less interesting answers are seen as contributing less, and are paid less attention. The converse applies to those consistently giving good answers. In this way affiliation to the group is built. In AP, although interesting answers are welcomed, if the problem presented were serious or realistic, likewise serious and realistic advice would

be expected.

Power in BG and AP belongs firstly, to the judge or judges, and secondly, to the contestants with high motivation. The obvious power holder is the judge who gives points. The first judge to award points in AP can sway the other judges in a bandwagon effect. Or conversely, the other judges may award points to others in a gesture of encouragement. But contestants can also obtain power through controlling the pace of the activity. They can interrupt and give longer answers to delay others' turns. Psychologically, those with more points have an edge over others.

Resources in both BG and AP are represented by the L2 of group members. Members are free to copy the best L2 phrases and usage; hence, resources are generally shared in these activities. Those with a larger L2 competence tend to fare better, although creativity and imagination are leveling factors. According to Vygotsky (1978), this sharing process creates zones of proximal development. In this case, group members develop their L2, that is, acquire language.

7 Local Dynamics: Group Projects and Group Types

In the process of completing group projects, groups must deal with the following issues at the local level (Arrow, et al., 2000, pp. 104–108): conflict-handling and consensus-attaining; synchronization of member activity (coordination of actions); and information processing and problem solving. The BG and AP activities limit the modes of interaction; conflict may arise when simultaneous answers are given, or if a contestant is seen to be cheating, as in using L1. On the other hand, in the AP activity, the judges, as a group, may want to award a win to the same person; in this case, the judges must undergo a process of consensus-attaining.

The type of group determines how relationships among members are formed (Arrow, et al., 2000, pp. 108–111). With crews, roles are specified

and members are expected to adhere to them; relationships follow the established structure. In task forces, ties among members usually increase and deepen with time, i.e., elaboration, and to reduce uncertainty, norms and expectations have to be clarified. The BG and AP activities are closer to crews than task forces in that everyone's roles are specified. However, like a task force, unplanned, creative interaction occurs, and in fact, is a key point of these activities. In AP, subgroups stay together throughout the activity, and essentially become a team, because they encounter similar experiences from various opposing subgroups as the game progresses; further, both problems and advice types can be recycled with each new grouping.

8 Local Dynamics: Task Network

In the fourth proposition, six components of the coordination network were identified. Arrow, et al. (2000, pp. 111−112) apply the elaboration, enactment/maintenance, and modification aspects of local dynamics to these component networks.

For the task network, elaboration entails breaking up the main task into subtasks and sequencing them (Arrow, 2000, pp. 112−114). These steps may continue as the task progresses. For crews, the subtasks and sequence are predetermined; for task forces, members determine them; and for teams, experience from doing other projects can help in the process.

As mentioned in the previous section, BG and AP display characteristics of both crews and task forces. As in crews, there are no subtasks to be decided. The elaboration occurs through experience, in the same way teams that stay together for multiple activities have task elaboration. Group members get steadily better as they become comfortable with their roles and discover what type of answers work best, and for AP, what type of problem elicits better advice.

9 Local Dynamics: Tool and Job Networks

For the tool network, explicit or implicit tools must be identified, and assigned to different tasks (or some tasks given priority in accessing tools) to create the job network. (Arrow, et al., 2000, pp. 115–118). These steps may require discussion among group members, with accompanying conflict and consensus.

In BG, the contestant roles are assigned the "tools": "May I borrow ... ?" or "Could you lend me ... ?" In AP, the judge roles are assigned the phrase "What should I do?" and the contestant roles are assigned various ways of giving advice. The phrases are specific to the role of judge or contestant. In this case, similar to crews, the tool and job networks are pre-determined; negotiation and analysis are not needed.

10 Local Dynamics: Labor and Role Networks

Labor and role networks are concerned with who gets assigned to the various tasks and tools/resources, respectively (Arrow, et al., 2000, pp. 118–127). This may be done according to skill level, status, and relationship to others. Members can simultaneously serve as a resource and a client of other resources. When assessing group members, the following factors are often used (p. 121):

1. Knowledge, skills, and abilities (KSAs)
2. Values, beliefs, and attitudes (VBAs)
3. Personality, cognitive, and behavioral styles (PCBs)

In a typical group project in the language classroom, for example, a presentation about culture, we can expect to see group members following the behavior outlined above. However, in restricted activities like BG and AP, where L2 usage is the primary goal, the labor and role networks

are specified in advance. Group members take turns at being judges and contestants; likewise they take turns at using the tools, that is, the phrases, accompanying the roles (job network). In other words, everyone will have a chance at the roles regardless of skills, values, and personality, and so on. Hence the assessment factors given above will not come into play except in determining how successfully members adapt to their roles.

11 Local Dynamics: Member Network

How the member network develops depends on whether group members have known each other before, whether members work closely or loosely, and the types of tasks they are assigned (Arrow, et al., 2000, pp. 127–130).

Both BG and AP can be described as a friendly competition. The factor in winning or losing is whether or not one's answers are interesting; this keeps the atmosphere light. Group members are classmates, and therefore acquaintances. Thus they are a subset of an already existing member network. The group does not need to spend time on elaborating the member network. The task of giving problems and answers does not require members to work closely, and in fact is a competition. This fact helps keep the activity in L2 among homogeneous L1 speakers. A similar power relationship exists in both, that is, judge and contestants. Where BG and AP differ is that in BG, there is a one vs. many relationship; in AP, there are two distinct groups. There tends to be a temptation to speak in L1 within the judges subgroup of AP because the competition factor is absent. L1 may break the classroom rules but not the game rules.

12 Conclusion

This paper has looked at the various patterns that arise at the local dynamics level of group activities, using the theory of groups as complex

systems by Arrow, et al. (2000). The theory proposes that group dynamics have three levels of operation, the local, global, and contextual. Groups can be classified as crews, task forces, teams, and circumstantial groups. Members' needs are met by groups and are a driving force behind group dynamics. Group dynamics at the local level can be analyzed by the concept of a coordination network, the links between various elements of groups. Six subnetworks can be identified: task, tool, job, labor, role, and member networks. The BG and AP activities were used to see how these ideas apply to real-world language learning activities.

Local dynamics, however, are not sufficient; indeed, complexity theory asks to look at systems from a non-reductionist viewpoint. But local dynamics are the base from which global behaviors emerge. Holland (1995, pp. 163−169) proposed that complex systems have at least two tiers, the lower one pertaining to a faster flow of resources among system elements and an upper tier of slower adaptation and evolution or metamorphosis. What we have examined here corresponds to the lower tier. A future paper may address the upper tier of the global and contextual levels.

Notes

(1) At Nanzan Junior College, first year students are grouped together in "K" classes, K1 to K10; they take all required classes together and they get to know each other well. In the second year, the students are organized by seminar, Q1 to Q12; within these Q classes we find cliques based on previous K class membership. Even within K classes, cliques form based on high school or region/dialect (mainly Nagoya, Mikawa, Gifu, and Mie) affiliations.

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